The rejection (section 5) states that "In claim 1, line 1, the term "general" is objected to"

Claim 1 has been amended to remove the word general.

The rejection (section 5) states that "In claim 1, regarding the value of n, it is unclear how zero can be definitive of a positive integer".

Claim 1 has been amended to make clear the definition of n and the requirements for the indices c and d which depend upon whether n is 0 or greater than 0.

The rejection (section 5) states that "In claim 2 it is not apparent what is meant by "hindered".

The definition of "Hindered Rigid Ring Amino Acids" is given in the specification, p. 8, lines 5-10 in which it is stated that Hindered Rigid Ring Amino Acids have "...at least one dimethyl substituted carbon atom adjacent to the ring".

Claim 2 has been amended to show in the claim itself the structure and allowable indices for Hindered Rigid Ring Amino Acids as stated in the specification, p. 8, lines 5-10.

Claim Rejections under 35 USC p 102/103

The rejection (section 8) states that "Claim 2 is rejected under 35 USC 102(b) as anticipated by or, in the alternative under USC 103(a) as obvious over DE 3829455 A1 (see english abstract)."

The rejection further states that "Cyclohexanepropanoic acid, 4-(2-aminoethyl) meets the presently claimed cyclohexyl based rigid ring amino acid because it has an effective methylene group of 8, which is greater than 5 and less than 27 and a carbon number of 11, which is greater than 9 and less than 34."

The cited amino acid in DE 3829455 has two methylene groups attached at both the 1 and 4 positions. This structure does not meet the limitations for Rigid Ring Amino Acids as described in claim 2 which states "...wherein the parameters c and d are chosen to be n where n is an integer and further chosen such that for any integer value of c = n where n is greater than zero then d = 0 and for any integer value of d = n where n is greater than zero then c = 0."

The cited structure in DE 3829455 has c = 2 and d = 2 thereby excluding it from the scope of Rigid Ring Amino Acids as detailed in claim 1 and in claim 2.

The rejection (section 8) states that "It is reasonable to presume that $-(CH_2)_2-CO_2H$ linkages meet the "hindered" limitation of the present claim."

The $-(CH_2)_2-CO_2H$ linkages do not meet the limitations for Hindered Rigid Ring Amino Acids as described in the specification, p. 8 , lines 5-10, and as shown structurally in

the amended claim 2. In the cited structure neither of the indices a or b are 1 which is a requirement of Hindered Rigid Ring Amino Acids as shown in claim 2. The requirement for the indices for the structure shown in claim 2 assure a dimethyl substituted carbon atom adjacent to the ring as detailed in the specification, p. 8, lines 5-10 thereby meeting the definition of "Hindered Rigid Ring Amino Acids".

The rejection (section 9) states that "Claim 2 is rejected under 35 USC 102b as anticipated by, or, in the alternative, under 35 USC 103a as obvious over Japanese 49041355 B4 Abstract.

The cited amino acid in the cited Japanese abstract 49041355 B4 does not meet the requirements for the structure of a Hindered Rigid Ring Amino Acid as described in the specification, p. 8, lines 5-10 and as is shown in the structural requirements in amended claim 2.

Claim rejections under 35 USC p. 103

The rejection (section 10) states that "Homologues are a class of compounds differing only by a methylene linkage and possessing similar structures. Accordingly, it would have been obvious to one having ordinary skill in the art to have replaced the $-CH_2)_3-$ portion in the amino acid formula of the reference with a homologous - $CH_2)_4-$ portion in view of their closely related structures and the resulting expectation of similar properties. Accordingly, absent evidence of unusual or unexpected results for the homologous amino acid containing the

$-(CH_2)_4-$ portion, no patentability can be seen in the presently claimed subject matter."

Applicant teaches in the specification p. 3, lines 19-21, the desirability for engineering thermoplastics to have a melting point in the range of 200 C to 300 C. The homopolyamide made with the amino acid in the cited Japanese reference melts well above 300 C. The investigators in the reference Japanese abstract used a copolymer of the amino acid monomer with caprolactam, a non-isomorphous comonomer. As is known by those knowledgeable in the art and noted in the specification, p. 3, lines 23-25, this results in a reduced melting point (in this Japanese example, 254 C). However, as is also known by those knowledgeable in the art, this non-isomorphic comonomer approach to achieve a lower melting point has the undesirable result of increased shrinkage of fibers made from such polymers.

One thrust of the present invention is a way to achieve a desirable homopolymer melting point while maintaining a desirable level of crystallinity and physical properties as described in the specification, p. 4, lines 14-17. Applicant claims that the use for a homopolyamide of a Rigid Ring Amino Acid with a $-(CH_2)_5-$ portion [which is the length of a structure with an Effective Methylene Length of 9 (greater than 8 per claim 1)] results in properties, specifically melting point, which are not similar to those with a polyamide made with a $-(CH_2)_3-$ portion homologue and do not result in ..."similar properties." The insight and one value inherent in the present invention is that by choosing a methylene portion of $-(CH_2)_5-$ rather than $-CH_2)_3-$ of the reference, one can obtain a

homopolyamide with a lower melting point close to 300 C. Applicant asserts that the amino acid of claim 1 with a minimum Effective Methylene length of 9 brings the methylene length into a range which yields homopolyamides with useful melting points and obviates the problem of melt processing temperatures which accelerate decomposition as noted in the specification, p. 3, lines 16-19.

In the intervening 30 years since the publication of Japanese 49041355 B4 Abstract there has been no indication in the literature of recognition of the value of using as monomers for homopolyamides the claimed Rigid Ring Amino Acids with the claimed range of Effective Methylene Length. Applicant asserts that this is, ipso facto, evidence that the claimed composition is unobvious.

Conclusion

For all of the above reasons, the applicant submits that the specification and claims are now in proper form and that the claims define patentability over the prior art. Therefore he submits that this application is now in condition for allowance which action he respectfully solicits.

Respectfully submitted

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Date: February 28, 2006